

REMARKS

Applicants propose amending claims 1, 6-7, 10, 25, 30-31, 34, and 49 as indicated above. Applicants also propose canceling claims 5 and 29. Applicants submit that the proposed amendments either cancel existing claims or incorporate limitations already present in one or more dependent claims into independent claims. Furthermore, Applicants believe that the proposed amendments place the present application in condition for allowance or in better condition for appeal. Thus, Applicants respectfully request that the proposed amendments be entered. Pursuant to the proposed amendments, claims 1-4, 6-28, and 30-51 are pending in the present application.

In the Office Action, claims 1-51 were rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over Horejsi, et al (U.S. Patent No. 5,239,487) in view of Lamey, et al. (U.S. Patent No. 6,408,219). Claims 5 and 29 have been canceled, rendering the Examiner's rejections of these claims moot. The Examiner's remaining rejections are respectfully traversed.

Horejsi describes a manufacturing rework station 100 that provides an operator with a graphical environment that aids in diagnosing and repairing defects in a manufactured article. The manufacturing rework station 100 includes a monitor 224 that monitors repair actions and may generate warning messages when defects rise above a critical level. See Horejsi, col. 5, ll. 34-60 and Figure 2.

Lamey describes a yield enhancement system that is used to organize defect classification information and attribute information into a global classification scheme. The global classification scheme described by Lamey includes assigning weighting and/or probability factors to various processing tools. A learning system 64 uses information from defects in

workpieces processed by the tools to continually refine the classifications and the assignment of defects to those classifications. See Lamey col. 5, l. 66 – col. 6, l. 44.

Independent claims 1, 13, 25, 37, and 49-50 set forth, among other things, processing a plurality of workpieces in a tool and monitoring a rework rate associated with the workpieces processed in the tool. Claims 1, 13, 25, 37, and 49-50 also set forth controlling at least one operating recipe parameter of the tool based on a process control model having at least one control state variable and determining a value of the control state variable in response to the rework rate being greater than a predetermined threshold.

To establish a *prima facie* case of obviousness, the prior art reference (or references when combined) must teach or suggest all the claim limitations. *In re Royka*, 490 F.2d 981, 180 U.S.P.Q. 580 (CCPA 1974). As admitted by the Examiner in the FINAL Office Action, Horejsi fails to describe or suggest processing a plurality of workpieces. The Examiner also admits that Horejsi fails to teach or suggest controlling at least one operating recipe parameter of the tool based on a process control model having at least one control state variable. Applicants respectfully submit that Horejsi further fails to teach or suggest determining a value of the control state variable in response to the rework rate being greater than a predetermined threshold. The Examiner argues (at item 3 on page 4 of the FINAL Office Action) that Horejsi teaches determining whether an observation is an indication that a process is going outside its control limits and that this constitutes determining a value of the control state variable. See Horejsi, col. 13, ll. 50-53. Applicants respectfully disagree and submit that an indication that the process is outside its control limits is not the same as a value of a control state variable and therefore Horejsi does not teach or suggest determining a value of a control state variable.

To remedy the admitted deficiencies in the primary reference, the Examiner alleges that Lamey describes processing a plurality of workpieces and controlling at least one operating recipe parameter of the tool based on a process control model having at least one control state variable. Applicants respectfully disagree. As described above, Lamey describes a global classification scheme that includes assigning weighting and/or probability factors to various processing tools, which may be modified as the global classification system learns the sensitivity of tools to specific processing lines using prior correct/incorrect classifications. See Lamey col. 6, ll. 9-21. However, the global classification system is only used to assign various defects to one or more classes and therefore is not a process control model. Furthermore, the associated classification weights are applied to data received from the tools and so the classification weights are not control state variables that are used to control operation of the tools based upon a process control model. Thus, Applicants respectfully submit that Lamey fails to teach or suggest controlling at least one operating recipe parameter of the tool based on a process control model having at least one control state variable. Lamey also fails to teach or suggest determining a value of the control state variable in response to the rework rate being greater than a predetermined threshold.

Applicants also respectfully submit that the cited references provide no suggestion or motivation to modify the reference or to combine reference teachings. As discussed above, Horejsi is completely silent with regard to process control models that may be used to control operation of a processing tool. Lamey is also completely silent with regard to process control models. To the contrary, Lamey is directed to a global classification scheme that may be used to classify defects in processed workpieces. Thus, the cited references provide no suggestion or motivation for controlling at least one operating recipe parameter of the tool based on a process

control model having at least one control state variable. The cited references also fail to provide any suggestion or motivation for determining a value of the control state variable in response to the rework rate being greater than a predetermined threshold.

Independent claims 21, 45, and 51 set forth, among other things, processing a plurality of workpieces in a tool and monitoring a rework rate associated with the workpieces processed in the tool. Claims 21, 45, and 51 also set forth controlling at least one operating recipe parameter of the tool based on a process control model having at least one control state variable, determining a value of the control state variable in response to the rework rate being greater than a predetermined threshold, and processing a subsequent workpiece in accordance with the new value of the control state variable.

As discussed above, the cited references fail to teach or suggest controlling at least one operating recipe parameter of the tool based on a process control model having at least one control state variable and determining a value of the control state variable in response to the rework rate being greater than a predetermined threshold. Applicants also submit that the cited references fail to teach or suggest processing a subsequent workpiece in accordance with the new value of the control state variable. The Examiner alleges that Lamey teaches processing a subsequent workpiece in accordance with the new value of the control state variable. Applicants respectfully disagree. As discussed above, the classification weights taught by Lamey are not control state variables and thus Lamey does not teach or suggest processing a subsequent workpiece in accordance with a new value of a control state variable.


For at least the aforementioned reasons, Applicants respectfully submit that the Examiner has failed to make a *prima facie* case that the present invention is obvious over Horejsi in view

of Lamey. Applicants respectfully request that the Examiner's rejections of claims 1-4, 6-28, and 30-51 under 35 U.S.C. 103(a) be withdrawn.

For the aforementioned reasons, it is respectfully submitted that all claims pending in the present application are in condition for allowance. The Examiner is invited to contact the undersigned at (713) 934-4052 with any questions, comments or suggestions relating to the referenced patent application.

Respectfully submitted,

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